IN THE SPECIFICATION

Please amend the specification beginning at page 1, line 1 and continuing to page 3, line 21.

Field

The invention provides a new distinct somaclone of rose scented geranium *P. graveolens* christened as ["Parimal"] 'Parimal' characterized by distinct morphology and improved oil yield determining parameters. The said novel somaclone has been developed from callus through *in vitro* tissue culture technique, without enforced mutagenesis. The plant possesses characteristic leaf morphology, vigorous growth, improved oil content per plant, herb yield and oil yield. The oil produced by this somaclone resembles the oil produced by the commercial type of bourbon geranium oil in that has equivalent ratio of citronellol and geraniol.

Background of the Invention

The present invention relates to a new and distinct somaclone of rose scented geranium *Pelargonium graveolens*, a member of the family Geraniaceae, which is a stable somaclone of the Indian cultivar Hemanti. The oil of geranium finds extensive use in perfumery, cosmetics, food and pharmaceutical industries (Narayana, 1986). Geranium was introduced in India in the beginning of this century and since then its cultivation and production of oil remained restricted to the high altitude regions of Ootacamund, Kodaikanal and Yercaud areas in South India (Narayana, 1986). India produces hardly 5 tonnes of geranium oil annually as against its own requirement of approximate 100 tonnes per year (Narayana 1986). The production of oil has declined gradually over the years and much of the requirement is met by imports. This may be due to narrow genetic base, resulting partially from sexual infertility, vegetative mode of propagation and restricted area of cultivation.

In India, two cultivars of geranium are mainly known; these are the types that produce Algerian or Tunisian quality and the Bourbon or the Reunion quality of geranium oils; these are given the names *Pelargonium* x *graveolens* cv Hemanti and *Pelargonium* x *graveolens* cv Bipuli, respectively. The cultivar Hemanti was found to be more adaptive than the cultivar Bipuli both in the hilly regions as well as in the unconventional areas of the plains. On the other hand, the cultivar Bipuli scored better than the Hemanti mainly because of its better oil yield

and improved organoleptic value of the oil. The perfumery value of geranium oil is mainly determined by the ratio of citronellol and geraniol and almost equal contents of these two major terpenoid components is generally considered to be the characteristic of the best quality geranium oil.

In an attempt to extend the area of cultivation of geranium to the Indo-gangetic plains, the better adaptive Hemanti cultivar was introduced in the Lucknow conditions in India. Subsequently, efforts were made through different biotechnological methods to develop clones with high content and desirable composition of the oil. The calliclone ["Parimal"] 'Parimal' evolved through this invention represents improvement over the wild type Hemanti parental cultivar both in terms of quality and quantity determining traits of the essential oil. This particular somaclone, being consistently stable over three years of field trials under Lucknow conditions, can offer an improved cultivar for commercial exploitation.

Objects of the invention

The main objective of the invention is to develop useful somaclonal variants of rose scented geranium christened as ["Parimal"] 'Parimal' which are distinct, stable and uniform through successive generations.

Another object is to develop somaclonal variants yielding high quality and quantity of essential oil.

Summary of the invention:

Accordingly the present invention provides a novel variety of rose scented geranium called ["Parimal",] 'Parimal' said plant developed through *in vitro* tissue culture methods from callus cultures. The invention further provides a useful somaclonal variant ["Parimal"] 'Parimal' of rose scented geranium (*Pelargonium graveolens* cv. Hemanti) yielding high quality and quantity of essential oil.

Detailed description:

In accordance with the above and other objects, the invention provides a novel somaclone of rose scented geranium called ["Parimal"] 'Parimal'. The said plant has been developed though *in vitro* tissue culture methods from callus cultures initiated from stem explants and cultured on modified Murashige and Skoog's medium (MS), 1962.

The invention further provides a useful somaclonal variant ["Parimal"] 'Parimal' of rose scented geranium (*Pelargonium graveolens* cv. Hemanti) having the following morphological characteristics.

Parentage: Pelargonium graveolens cultivar Hemanti

Propagation: Exclusively vegetative propograted through terminal stem cuttings.

Time to Initiate Roots: 15-20 days.

Time to Produce a Rooted Young Plant Through Terminal Stem Cuttings: 30-35 days.

Terminal Stem Cuttings: 30-35 days.

Root description: Fibrous, brown in color.

Rooting Habit: Freely branching, dense.

Plant description:

General appearance	Upright, with larger and dense spreading canopy
Growth branching habit	Vigorous, showing extensive basal tillering
Plant [height] length	85-95 cm
Growth habit	spreading, round canopy
Plant height, to top of foliar plane	~ 46cm
Stem	green, internodes 8-9 cms long, nodes pinkish
Main Branches	[91-101] Length about 85 cm, diameter about 1.1 cm internode length about 4 cm, texture pubescent, color 138D, color at nodes 75C
Lateral Branches	Length abouit 70cm, diameter about 0.7cm, intermode length about 8cm, texture pubescent, color 138D.
[Leaf] Leaves	
number per branch	[10-] 25
arrangement	Alternate
length	~6cm
width	~5cm

texture	pubescent
shape	thick, serrated with round lobes
apex	obtuse
base	cordate
number of primary lobes	3
secondary lobes	12-15
Tip	Blunt
Leaf area	20-28 cm^2
Texture (upper surface)	pubescent
Texture (lower surface)	pubescent
Petiole	~8 cm (pinkish)
Morphological marker	Less dentated leaf morphotype (Ldl)
Leaf / stem ratio (L/S)	2.1
Herb yield/ plant	4.5 kgs.
% oil content	0.18 (mean)
Oil yield /plant	7.1 gms. (mean)
Oil yield (kg/ha)	71.1 (mean)
Flower:	No flowering entire lifetime
Seed:	No seed formation.
Disease Resistance:	Exhibited no specific susceptibility towards the commonly occurring fungus.